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[Przypadek parakeratozy u prosiat]

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A CASE OF PARAKERATOSIS IN PIGLETS

In these days of the intensification of the production of vegetables and animals, the question of a shortage of trace elements is taking on particular importance. The technical literature contains increasingly frequent references dealing with the shortage of trace elements in the soil, in plants, and in the organisms of animals.

A quite essential trace element in the nourishment of animals is zinc. The existence of a shortage of zinc is the result of a whole series of factors that can be traced to animal husbandry and agronomy. According to Cakala and Rakalska [1] the intensification that has taken place in stock raising has lead to an increase in the demand for zinc, and the intensification that has taken place in the growing of plants has resulted in the use of lime to bring soil to the pH factor required, while at the same time reducing the zinc content in the plants.

Underwood [4] states in connection with trace elements, and in particular in connection with zinc, iron, copper, and manganese, that only 3 to 10% of such elements contained in animal fodder are exploited. Abnormal proportions of individual mineral elements in fodder, and the excess of lime in particular, have led, if indirectly, to the relative shortage of zinc.

Parakeratosis in animals ascribed to a zinc deficiency was reported for the first time in 1955, by Tucker and Salmon (cited in [3]), and their findings were soon confirmed by other researchers. These same authors have stated that parakeratosis in hogs occurred primarily because of their having

been fed a commercially mixed protein fodder with an excess of lime. Many researchers subsequently developed the fact that a zinc deficiency can be created experimentally in hogs, poultry, lambs, and calves. Also demonstrated was the fact that the addition of zinc prevented, and in fact could be used to treat, the skin disease in hogs known as parakeratosis. Piglets are particularly susceptible to zinc deficiency, because, as Underwood [4] has pointed out, sow's milk, as distinguished from the milk of the female of other species, contains the fewest mineral components, and is completely devoid of zinc. Piglets are even more susceptible to zinc deficiency in the winter time because they can obtain nothing from their pens, and there is no verdure in the clay, or in the soil.

Personal Observations

At the end of July 1971, 10 white Dutch long-eared sows were delivered to the Experimental Institute in "S" from Holland. The hogs were sufficiently along to become acclimatised, particularly during gestation. The litters were born near the end of December 1971, and from the beginning thrived and put on weight. In addition to the milk obtained from the sows, they were given mixture P and drinking water. Inquiry established the fact that undetermined quantities of mixture MM had been added to mixture P. The essential ingredients in the fodder given the sows was mixture M-Bek, to which mixture MM had been added, along with a small quantity of potatoes (about 1 kg/animal), and buttermilk.

The piglets began to show signs of different types of setbacks in growth, slight loss of appetite, and unsteady gait at the age of 4 to 5 weeks, however. This was followed by paresis of the legs, particularly the hind ones, and by

edema of all leg joints. The most characteristic symptoms developed on the skin, which thickened, particularly along the back and sides, and became covered with black crusts on and around the ears, on the abdomen along the linea alba, as well as on the inner sides of the thighs. Extensive ulceration with a vivid red base appeared on the long sections of the legs. The first clinical examinations were made on 3 February 1972, at which time 45 of the 75 piglets in the herd bred by the imported sows had the disease as described. Six died within the next two days. Autopsies performed on the dead piglets showed the articular capsules to be filled with a bright yellow fluid, extravasation under the mucosa of the oral cavity, and inflammation of the mucous membranes of the upper respiratory pathways, and of the digestive tract, in addition to the changes in the skin already described.

Blood samples were taken from five sows, three of them imported sows whose piglets had come down with parakeratosis, and two domestic sows whose unweaned piglets showed no pathological symptoms at the time, for purposes of making a zinc determination, and in order to corroborate the clinical diagnosis that pointed to parakeratosis.

The biochemical examinations were made by ZHW in Bialystok (Study No. 96-100/72), and showed the zinc level in the blood serum of all five sows to be between 67.4 and 69.1 gamma % (with the physiological normal between 80 and 120 gamma %). The existence of a zinc deficiency was apparent. It is suggested that the appearance of clinical symptoms of parakeratosis in the piglets of the imported sows only is due to the greater sensitiveness of these sows during the acclimatisation period.

Once having established the clinical diagnosis of parakeratosis, we immediately proceeded to treat the sick piglets by giving them perorally one teaspoon (about 5 ml) of a dilute zinc solution made up as follows:

Zincum oxydatum	30.0
Acid lact. 50%	30.0
Aq. font. ad	1000.0

Despite the acute, advanced stage of the disease, all of the sick piglets, 46 animals in all, were able to make it to the feed trough on their own and feed within about 12 hours or so after the first administration of zinc. Treatment was continued for three weeks. There was daily improvement in the health of the afflicted piglets, appetites returned, and the sores healed without the need for additional external medication.

The fine results obtained by using this treatment led us to use zinc preventively. All piglets were given a daily dose of one teaspoon of the mixture, and the sows were given three teaspoons, for a period of three weeks. There were no further outbreakds, or deaths.

The data thus obtained lead to the following conclusions:

1. piglets born to hogs of the "bzh" strain were more sensitive to zinc deficiency during the acclimatisation period than were the piglets born to the domestic "bzp" strain hogs;

2. zinc administered perorally to piglets afflicted with parakeratosis promptly results in the abatement of local and general symptoms of the disease;

3. preventive addition of zinc to the fodder given hogs will prevent

further appearance of parakeratosis.

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